DCCUMENT RESUME

ED 234 916 PS 013 863

AUTHOR Sigel, Irving E.
TITLE Structural Analysis of Parent-Child Research Models.
PUB DATE Apr 83
NOTE 23p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (50th, Detroit, MI, April 21-24, 1983).
PUB TYPE Information Analyses (070) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Classification; *Models; *Parent Child Relationship; *Research Design; Research Needs
IDENTIFIERS *Variables

ABSTRACT

Structural models and classes of variables used in parent/child research are identified, and their implications are briefly discussed. The five types of research models appraised are noninteractive, unidirectional, bidirectional, family network, and sociopolitical. It is asserted that, taken together, the typology of models provides a system by which most studies in the field of parent/child research can be classified. Covering the content of most existing research, four categories of research variables are listed. These include family demographics, psychological characteristics/status, parent behaviors/actions, and child outcomes. Limitations of previous research are pointed out, and directions for future research are specified. It is concluded that, at the present time, parent/child research can move in the direction of greater complexity and that the greatest challenge facing researchers is the construction of a developmental conceptualization of family process and practice. (RH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED234916

Structural Analysis of Parent-Child Research Models

Irving E. Sigel

Educational Testing Service

Princeton, New Jersey 08541

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Irving Sigel

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

PS 013863

Paper delivered at the symposium, "The Cognitive Experience of Parents" at the meeting of the Society for Research in Child Development, Detroit, Michigan, April, 1983.

Structural Analysis of Parent-Child Research Models

The purpose of this presentation is to attempt to set the stage for some of the current thinking in the area of parent-child research. To assert that even this can be done at all may appear presumptuous. However, I shall make the effort by defining two types of classification which may set the direction for future efforts: structure and content.

The plethora of research studies over the years focusing on parent-child relationships is disparate in terms of conceptual base, the methods employed, and the data analytic procedures used. Thus to embark on an integration route requires a decision as to what level of the analysis will be employed.

Over the years the conceptualizations have derived from psychoanalytic, behavioral social learning, ethological frames of reference, among others, thereby making integration a very difficult, if not impossible, task. The discrepancy among researchers' conceptualizations is considerable. This problem is made even more difficult because often the theoretical base is not articulated, but rather, implicit. Often theoretical bases are problem-based, e.g., in an excellent review article on parent-child relationships published in the Review of Child Development Research, Martin organized the existant literature in the field in terms of a variable orientation such as achievement, parent behaviors, independence, attachment, rather than a structural orientation (Martin, 1975). While such an organization is successful, it provides an organization

of variables which is not broadly conceptual, nor does it pose conceptual problems in need of resolution. Such a variable approach results in a fragmented view of parent-child interactions. Fragmentation is evident not only in the organization by variables, but also by focusing on particular dyads (e.g., Lamb, 1976), or on directionality (Bell & Harper, 1977). Although each of these types of efforts has contributed significantly to our understanding of aspects of the parent-child interactions, investigators have left the family unit out of their reports. Yet it seems that an understanding of parent-child relationships entails a family perspective since the dyads are embedded in the larger context.

From the naive perspective, the parent-child relationship is in a social matrix which is the family. Current studies of parent-child relations disembed one type of dyadic relationship. The argument seems to be that focus on the parent-child configuration is justified because such a strategy allows for the identification of parental effects on children's development in a valid way. For example, studies of mothers interacting with their infants are presumed to be tests of the effects of mothers on their children and vice-versa, yielding valid and reliable information about the nature of this relationship. Such decontextualization would seem to negate the reality of parent-child relationships as part of the family context.

As an initial step in our review of parent-child research, let us begin by presenting a structural typology. As will be seen, a structural categorization provides a heuristic by which to identify the paradigm of research. Although no specific count of the studies within each of the category types is presented, such an analysis provides a novel categorical system with which to begin an overview.

Let us start then with the family as the unit of analysis, since it is that network in which the parent-child dyad is embedded.

This paper will address three broad issues:

(1) A description of models currently employed in studying parent-child research, with no attention paid to content.

(2) A listing of the variety of concepts used in studying parent-child interactions.

(3) Finally, a suggestion for steps that might lead to creation of subsets of knowledge--arguing that true integration is not yet feasible.

The schematics for various types of models that can be found in the parent-child research literature are listed in Table 1. These typologies allow for a system by which most studies in the field can be classified. Beginning with Type 1, non-interactive schematic, studies in this category assess parents' characteristics relative to their children's development without involving the child (see Table 1). For

example, Dix and Grusec (1983), in their study of parental attributions, generate a set of hypothetical vignettes to which the parent is asked to respond. A number of attitudinal attributions on cognitive level assessments provide but a catalogue of such parental characteristics. Research of this type, although providing reliable parental data, reveals little about the significance of such parental characteristics (see Table 1, Model 1.1).

Insert Table 1 about here

A related model is one in which parents may observe a child's behavior or obtain information about a child and are asked to produce attributions regarding their child's behavior (see Table 1, Model 1.2). An example of this type of research is that of Halloway and Hess (1982) where parents had information about their child's school achievement and attributed explanations or predictions of how and why the child did what he or she did.

These models, then, provide information about the parents' status; they allow for influence about how such outcomes come about. They do not provide the data to identify antecedents of parental behavior other than the usual demographic characteristics which are treated as control variables (i.e., as methodological variables rather than in the service of understanding). Controlling for educational level, for example, does not yield explanations regarding the phenomena in question.

Model 1.2 refers to studies in which the effects of child characteristics on parents' behaviors, feelings, etc. are the focus of the study. Patterson (this symposium) makes the point, for example, that anti-social behaviors of teenagers place the child at risk for maternal rejection. Thus we can designate this specific type of model to where the child behavior is the independent variable and the perceived response of the parent is the dependent variable.

A major limitation of these noninteractive models is that they only identify the parent's or the child's state of mind--they do not indicate whether in actual behavioral or socially interactive terms these factors produce differences that make a difference. Nevertheless, some results of import do result. For example, Halloway and Hess (1982) do report significant and moderately high correlations between maternal perceptions of the children's test performance and children's performance in school.

The next set of models is unidirectional (see Table 1, Models 2.1, 2.2, and 2.3). This type of research, probably influenced by disaffection with the low or nonfunctional predictive power of noninteractive models, emphasizes a behavioral orientation. The basic argument is that parents' attitudes, beliefs, attributions or whatever are expressed in parental behaviors. Consequently, the focus of the research should be on parent behaviors as they impact the child's performance.

Three types of unidirectional research can be identified and these are schematized in the table under the unidirectional rubric. Using demographic variables such as age, sex, educational level and the like as controls, a host of studies examined the relationship between parental teaching or management behaviors and child outcomes. Many of these studies reported positive but low correlations between what the parent does and child outcomes (Martin, 1975; Sigel, Dreyer, & McGillicuddy-DeLisi, in press.) Studies of this type investigated a variety of parental teaching or management behaviors and their relationship to any one of a number of child outcome measures. For example, studies with infants focused on parent vocalization to the infant as the independent measure, with the changes in infants' vocalization as the dependent measures.

In this same genre, studies have been reported where a class of children's behavior is the independent variable, with parents' reactions as the dependent measures. The argument is that while parents' behavior influences children, children's behavior also influences parents. Bell and Harper (1977) for example, have emphasized this phenomenon in their review of the human and animal literature.

Before discussing the implications of either model under the unidirectional schema, there is a more complex unidirectional model that is used that is schematized, Model 2.3 (see Table 1). This is the case where the investigator moves beyond the

simple independent-dependent framework to a quasi-bidirectional model beyond just parent behavior. In this approach parent beliefs are hypothesized as influencing parent behavior which in turn influences child behaviors. The project Ann McGillicuddy-DeLisi and I have done is a typical example (Sigel, McGillicuddy-DeLisi, Flaugher, & Rock, 1983). The parent characteristics we zeroed in on were parent beliefs regarding children's intellectual development, which we hypothesized would predict to parents' teaching strategies, which in turn would predict to children's problem-solving abilities. The predictions were initially unidirectional where the beliefs were moderated through the parent teaching behavior which in turn influences the child. So, parent beliefs can be said to be an indirect influence. Although the results were generally consistent with our expectations, two things were patently clear. First, we were treating parental beliefs and practices as static, as if they were independent of child responses. Second, we were dealing only with a fixed time frame (more about that later). Yet, our impressions as we observed the parents in our study interacting with their children were that parents modified their behaviors relative to the child's response. Thus we altered our analysis and generated interactive analyses. The significance of such parental reactions, moreover, is yet to be assessed in our particular study (Sigel et al., 1983).

A third model for study is a dramatic move away from these unidirectional approaches investigating parents' influences on the child and the child's effects on the parent. The model is the interactions model diagramed under the bidirectional rubric (see Table 1, Models 3.1, 3.2 and 3.3).

In this model, the classes of variables that can be said to have a direct effect on the child would be those parent behaviors which elicit a response from the child and whether the parent's subsequent response is contingent on the child's actions. An interaction cycle is set up in which each unit of behavior of one of the participants in the interaction is contingent, in temporal terms, on the behavior of the other. The independent-dependent paradigm non-process model freezes units of interaction, whereas in the bidirectional model, the mutual engagement is an ongoing set of activities with the temporal factor broadened. Serious and significant efforts are being made using sequential analysis. Bakeman (1978), for example, presents a variety of strategies for embarking on sequential interactional analyses to untangle the complexities of social interaction.

The structural models described to this point focus on the parent-child dyad as the unit of analysis. The rationale for such an emphasis has its roots in the conceptual models employed to address particular questions, e.g., the effects of parental discipline or control strategies relative to the

child's development. The underlying assumption seems to be that focus on this set of dyadic relationships will help uncover significant information which will contribute to our understanding of the role of parental practices in the life of the child.

In Model 4 of Table 1 there is a schematic which characterizes the family as the unit of analysis, rather than the parent-child dyad--or even triad. This schematic approaches a systems analysis model, one employed often by family therapists (Beaver, 1977; Hill, 1973; Lewis, 1977; Reiss (1981). Such an approach which has been in the family research and family therapy literature for years still has, to the best of my knowledge, not been employed successfully among developmental psychologists. The shift from a dyadic unit to the family as the unit of analysis is major since in this latter case the complexity increases geometrically. If one enlarges the family unit to its place in the large scheme of things, we come to the last schematic (Table 1, Models 4.1, 4.2).

Each of the three structural models is essentially an abstraction, i.e., reflects portions from a larger whole, which in this case is the family. To be sure everything interacts with other things: "It is now the time [according to Denenberg] for researchers to deal with interactions at a conceptual level as an inherent property of systems, rather than think of them simply as statistical nuisances resulting

from a particular type of experimental design involving the analysis of variance" (Denenberg, 1982, p. 80).

I do not feel at this time that a systems approach is warranted. Rather, I would like to propose the idea of configurational analyses wherein the configuration developed to answer a particular question in a family context takes into account the fact that the level of explanation obtained from a study is constrained or enhanced as a function of the schematic model used. For example, years ago Hess and Shipman (1965), employing the unidirection model (2.2), studied the relationship between parent teaching strategies and children's cognitive functioning. Employing appropriate demographic controls these writers identified teaching styles of parents and their impact on their young children. We can ask a series of questions about this study. For example, are these teaching styles valid representations of parents' general teaching behaviors? Can the children's behaviors be attributed to the class of teaching strategies evidenced in that setting and presumed to be characteristic of the parents, or is the child's intellectual performance a function of that child's history? Another question is--What are the determinants of parents' teaching styles? Essentially, there is limited explanation of the results of this study. A more elaborated model dealing with some of these questions is the one Ann McGillicuddy-DeLisi and I have. We employed what is model 2.3. In that model we

dealt with the following parental beliefs: parent practices and children's representational competence. We discovered that in fact what parents believe does relate to how they teach and how they teach does relate to children's outcomes. This approach extended the configuration because we studied the influence of each child. We built a tight conceptual model defining each of our variables within each of the categories. I believe our understanding of the how come of parent behaviors is enhanced (Sigel, et al., 1983).

These schematics are organizational outlines devoid of specific contents. While the schematics do in fact reflect a conceptual orientation, the content plugged into these "circles" reflects the conceptual perspective of the investigator. Inspection of Table 2 will reveal the variety of classes of variables that characterize most of the existent research. Four classes of variables are presented: demographic, parent characteristics or state, parent practices and child outcomes. These encompass virtually every study in the field.

Insert Table 2 about here

Although the variables listed in Table 2 are of general interest, few if any studies have focused on their inter-relationships in the family context. Fowler has characterized such research as variable oriented rather than contextually conceptualized (W. Fowler, personal communication, 1983).

An example, however, of a more extensive effort is that of Bee et al. (1982). However, even in this comprehensive study mothers were the primary informants.

A major limitation characterizing most of the research in the field is the lack of a developmental conceptual model. Within each of the structural models a temporal factor must be built in and the bidirectional-interactive model involves that, since interaction obviously moves through time and transformations occur within and between subjects. This is one of the most difficult areas to conceptualize and to investigate. Of course, various longitudinal studies have reported predictive changes from one period to another (cf., Bee et al., 1982). But these are essentially descriptive statements not process types, either in concept or in method. I see this problem as one of the greatest challenges facing us in the field of family research.

In conclusion, structural analysis of models provides a heuristic procedure which helps identify the components. We have the techniques to do it. Causal models analyses of various types have been proposed (e.g., Kenny, 1979). While these are still conceptual and statistical, as well as philosophical issues to be resolved, it is clear that the field can move in that direction of greater complexity. Family researchers such as Reiss (1981) have provided exciting and novel models that can be adapted by developmental psychologists. To be

sure, Reiss worked with families of schizophrenic adolescents. Nevertheless, the conceptualization and the methodological innovation are highly suggestive for all of us. Patterson's (this symposium) path model analyses are also prototypes of what might be done. The fact that our study did also demonstrate the feasibility of such a comprehensive undertaking, lends credence to advocating more such undertakings (Sigel et al., 1983). I submit to you they are necessary if we hope to obtain a corpus of data which is derived from a model which approximates the social environment in which children and parents develop.

The biggest challenge facing us in this entire effort is how to construct a developmental conceptualization of family process and practice specifiying the significant content. It is here that we need to bring to bear what we know, what we think and how we can do it.

References

Bakeman, R. (1978). Untangling streams of behavior: Sequential analyses of observational data. In G. P. Sackett (Ed.), Observing behavior: Vol. 2. Data collection and analysis methods (pp. 63-78). Baltimore: University Park Press.

Beaver, W. R. (1977). Psychotherapy and growth: A family systems perspective. New York: Brunner/Mazel.

Bee, H. L., Barnard, K. E., Eyres, S. J., Gray, C. A., Hammond, M. A., Spietz, A. L., Snyder, C., & Clark, B. (1977). Predictions of IQ and language skill from perinatal status, child performance, family characteristics, and mother-infant interactions. Child Development, 53, 1134-1156.

Bell, R. Q., & Harper, L. V. (1977). Child effects on adults. Hillsdale, NJ: Lawrence Erlbaum Associates.

Denenberg, V. H. (1982). Early experience, interactive systems, and brain laterality in rodents. In L. A. Bond & J. M. Joffe (Eds.), Facilitating infant and early childhood development (pp. 78-97). Hanover, NH: University Press of New England.

Dix, T., & Grusec, J. E. (1983). Parental influence techniques: An attributional analysis. Child Development, 54, 645-652.

Hess, R. D., & Shipman, V. C. (1965). Early experience and the socialization of cognitive modes in children. Child Development, 36, 869-886.

Hill, R. (1973). Modern systems theory and the family: A confrontation. Social Science Information, 10, 7-26.

Holloway, S. D., & Hess, R. D. (1982). Causal explanations for school performance: Contrasts between mothers and children. Journal of Applied Developmental Psychology, 3, 319-327.

Kenny, D. A. (1979). Correlation and causality. New York: Wiley.

Lamb, M. E. (1976). The role of the father in child development. New York: Wiley.

Lewis, J. M. (1977). A teacher of psychotherapy looks at family systems issues. In Beaver, W. R. Psychotherapy and growth: A family systems perspective (pp. 159-183). New York: Brunner/Mazel.

Martin, B. (1975). Parent-child relations. In F. D. Horowitz (Ed.), Review of child development research (Vol. 4, pp. 463-540). Chicago: The University of Chicago Press.

Reiss, D. (1981). The family's construction of reality. Cambridge, MA: Harvard University Press.

Sigel, I. E., Dreyer, A. S., & McGillicuddy-DeLisi, A. V. (in press). Psychological perspectives of the family. In R. D. Parke (Ed.), Review of child development research (Vol. 7). Chicago: University of Chicago Press.

Sigel, I. E., McGillicuddy-DeLisi, A. V., Flaugher, J., & Rock, D. A. (1983). Parents as teachers of their own learning disabled children (ETS RR 83-21). Princeton, NJ: Educational Testing Service.

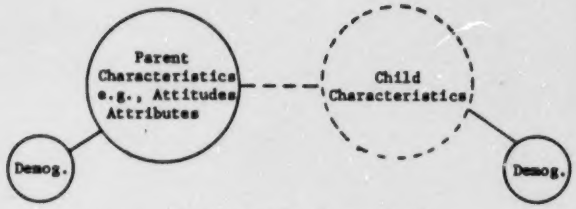
von Bertalanffy, L. (1968). General system theory. New York: George Braziller.

Table 1

Some Structural Models used in Parent-Child Research

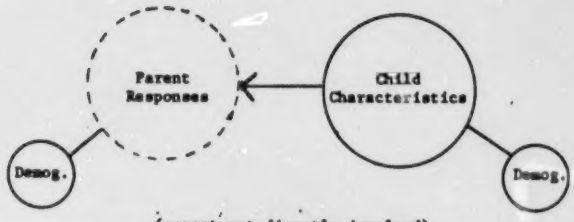
1. Non-Interactive Models

1.1



(child not directly involved)

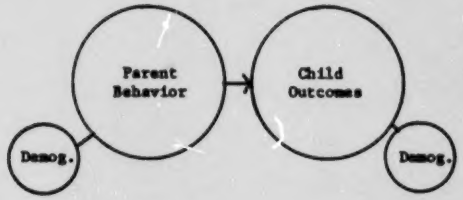
1.2



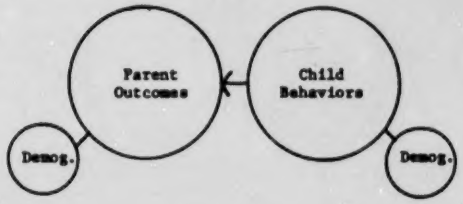
(parent not directly involved)

2. Unidirectional Models

2.1



2.2



2.3

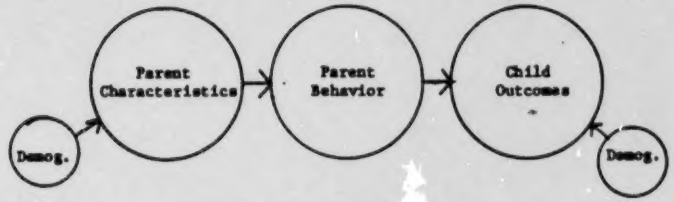
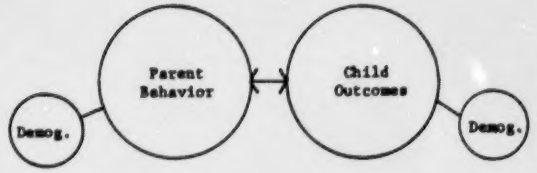


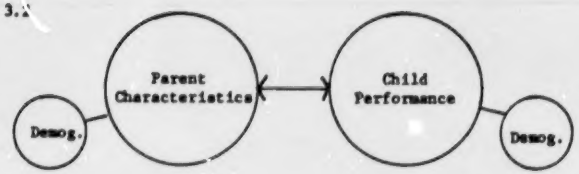
Table 1 (continued)

3. Bidirectional Models

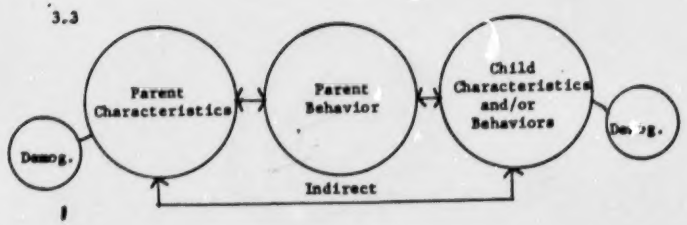
3.1



3.2

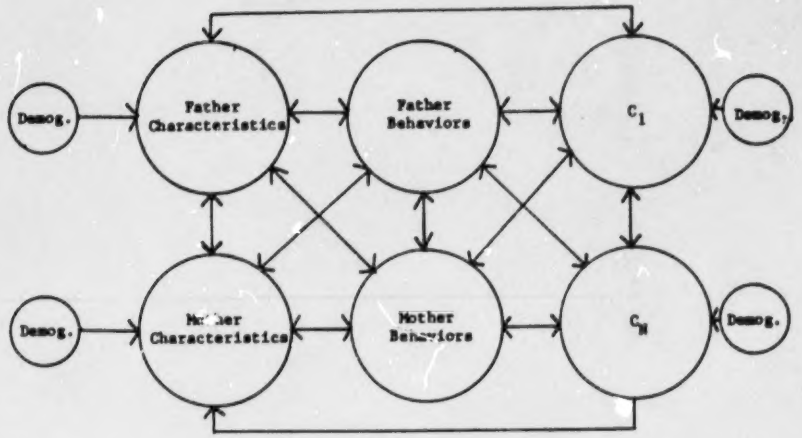


3.3



4. Family Network

4.1



4.2 Socio-Political--Context

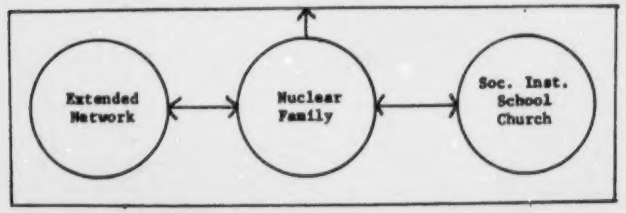


Table 2

Some Classes of Variables Employed in Parent-Child Research

Family Demographics	Psychological Characteristics/States	Parent Behaviors/Actions	Child Outcomes
Parents	Parents	Teaching Strategies	Intellectual-Cognitive
Education	Values	Discipline-Management Strategies	IQ
Occupation	Beliefs	Verbal Interactions - Social	Problem-Solving Skills (Social, Non-Social)
Age	Attributions	Physical Contact	Attributions
Sex	Attitudes		Cognitive Styles
Family Size	Temperament		Moral Judgment
Ethnicity	Knowledge Level		Knowledge
Area lived in	Cognitive Level		Language Usage - Comprehension
Characteristics of home	IQ		Academic
Birth Order	Personal-Social Character		Achievement - math, science, reading
Child	Child		Achievement Motivation
Age	"Normal"		Personal-Social Characteristics
Sex	Mentally Retarded		Self-Concept
Educational Level	Emotionally Disturbed		Impulse Control
Bith Order	Gifted and Talented		Social Behavior - pro/anti
	Learning Disabled		Temperament
	Premature Birth		Emotional Expressiveness - Control
			Social-Interaction - Peers
			Ego Development